INDEX TO VOLUME 95

Aalto, K. *See* Scrutton, R. A.

Abrahams, A. D. *See* Parsons, A. J.

Aharon, P., R. A. Socki, and L. Chan. *Dolomitization of Atolls by Sea Water Convection Flow: Test of a Hypothesis at Niue, South Pacific*, 187

Alt, D. *See* Hyndman, D.

Anders, M. H., S. W. Krueger, and P. M. Sadler. *A New Look at Sedimentation Rates and the Completeness of the Stratigraphic Record*, 1

Anderson, A. T. *See* Decker, R. W.

Anderson, J. L., and R. L. Cullers. *Crust-Enriched, Mantle-Derived Tonalites in the Early Proterozoic Penokean Orogen of Wisconsin*, 139

Anderson, R. S. *Eolian Sediment Transport as a Stochastic Process: The Effects of a Fluctuating Wind on Particle Trajectories*, 497

Anovitz, L. M., and E. J. Essene. *Compatibility of Geobarometers in the System CaO-FeO-Al_2O_3-SiO_2-TiO_2-(CFAST): Implications for Garnet Mixing Models*, 633

Arth, J. G. *See* Patton, W. W., Jr.

Balakrishnan, S., and V. Rajamani. *Geochemistry and Petrogenesis of Granitoids around the Kolar Schist Belt, South India: Constraints for the Evolution of the Crust in the Kolar Area*, 219

Baur, N. *See* Kröner, A.

Bayer, U., and A. Sielacher, editors of Sedimentary and Evolutionary Cycles. Review by C. W. Byers, 587

Beginning of the Age of the Dinosaurs, edited by K. Padian. *Review* by D. Jablonski, 845

Blake, S. *Sediment Entrainment in Viscous Fluids: Can Crystals be Erupted from Magma Chamber Floors?*, 397

Bloomer, S. H., and R. L. Fisher. *Petrology and Geochemistry of Igneous Rocks from the Tonga Trench—A Non-Accreting Plate Boundary*, 469

Bohlen, S. R. *Pressure-Temperature-Time Paths and a Tectonic Model for the Evolution of Granulites*, 617

Borsuk, A. M. *See* Hess, J. C.

Bradley, D. C. *Paleocurrent Directions from Two-Dimensional Exposures of Cross Laminae in the Devonian Flysch of Maine*, 271

The Brevard Zone in South Carolina and Adjacent Areas: An Alleghanian Orogen-Scale Dextral Shear Zone Reactivated as a Thrust Fault [S. H. Edelman, A. Liu, and R. D. Hatcher, Jr.], 793

Bridge, J. S. *Horizontal Laminae Formed under Upper Flow Regime Plane Bed Conditions: A Discussion*, 281

Busby-Spera, C. J. *Lithofacies of Deep Marine Basalts Emplaced on a Jurassic Backarc Apron, Baja California (Mexico)*, 671

Butler, R. F., D. W. Krause, and P. D. Gingerich. *Magnetic Polarity Stratigraphy and Biostratigraphy of Middle-Late Paleocene Continental Deposits of South-Central Montana*, 647

Byers, C. W. *See* Bayer, U.

Callahan, E. J. *See* Rogers, J. J. W.

Campbell, I. H. *Distribution of Orthocumulate Textures in the Jimberlana Intrusion*, 35

Campbell, I. H., and J. S. Turner. *A Laboratory Investigation of Assimilation at the Top of a Basaltic Magma Chamber*, 155

Carlson, C. *See* Patton, W. W., Jr.

Cazier, E. C. *Late Paleozoic Tectonic Evolution of the Norfolk Basin, Southeastern Massachusetts*, 55

Chacko, T., G. R. Ravindra Kumar, and R. C. Newton. *Metamorphic P-T Conditions of the Kerala (South India) Khondalite Belt, A Granulite Facies Supracrustal Terrain*, 343

Chan, L. *See* Aharon, P.

Cheel, R. J. *See* Middleton, G. V.

Clark, P. U. *Subglacial Sediment Dispersal and Till Composition*, 527

Clarke, D. B. *See* Wall, V. J.

Clastic Particles: Scanning Electron Microscopy and Shape Analysis of Sedimentary and Volcanic Clasts, by J. R. Marshall. *Review* by J. V. Smith, 845

Clemens, J. D., and A. Navrotsky. *Mixing Properties of $NaAlSi_3O_8$ Melt-H_2O: New Calorimetric Data and Some Geological Implications*, 173

Clemens, J. D. *See* Wall, V. J.

Coastal Fan Processes Controlled by Sea Level Changes: A Quaternary Example from the Tenryugawa Fan System, Pacific Coast of Central Japan [T. Muto], 716

Comment on "Kelvin and the Age of the Earth" [T. M. Harrison], 725

Compatibility of Geobarometers in the System CaO-FeO-Al_2O_3-SiO_2-TiO_2-(CFAST): Implications for Garnet Mixing Models [L. M. Anovitz and E. J. Essene], 633

Compositional Variations in Manganese Micronodules: A Possible Indicator of Sedimentary Environments [R. Sugisaki, M. Ohashi, K. Sugitani, and K. Suzuki], 433

Compositions of Igneous Rocks in the Thurston Island Area, Antarctica: Evidence for a Late Paleozoic-Middle Mesozoic Andinotype Continental Margin [C. M. White and C. Craddock], 699

Compston, W. *See* Kröner, A.

Confirmation for a Late Oligocene-Early Miocene Age of the Deseadan Salla Beds of Bolivia [C. W. Naeser, E. H. McKee, N. M. Johnson, and B. J. MacFadden], 825

Constraints on the Jurassic Time-Scale by $^{40}Ar/^{39}Ar$ Dating of North Caucasian Volcanic Rocks [J. C. Hess, H. J. Lippolt, and A. M. Borsuk], 563

Controls on the Apparent Thermal and Baric Structure of Mountain Belts [H. Day], 807

Corfu, F., and E. C. Grunsky. *Igneous and Tectonic Evolution of the Batchawana Greenstone Belt, Superior Province: A U-Pb Study*, 87

Craddock, C. *See* White, C. M. *Crust-Enriched, Mantle-Derived Tonalites in the Early Proterozoic Penokean Orogen of Wisconsin* [J. L. Anderson and R. L. Cullers], 139

Cullers, R. L. *See* Anderson, J. L.

Day, H. *Controls on the Apparent Thermal and Baric Structure of Mountain Belts*, 807

Debari, S., S. M. Kay, and R. W. Kay. *Ultramafic Xenoliths from Adagdak Volcano, Adak, Aleutian Islands, Alaska: Deformed cumulates from the Moho of an Island Arc*, 329

Decker, R. W., T. L. Wright, and P. H. Stauffer, editors of Volcanism in Hawaii. *Review* by A. T. Anderson, 729

Deformation of Incompletely Crystallized Magma Systems: Granitic Gneisses and their Tectonic Implications [M. J. Hibbard], 543

Delaloye, M. *See* Spadea, P.

Dingwell, D. B., and C. M. Scarfe. *Solubility of Water in Albite-Melt Determined by the Weight Loss Method: A Discussion*, 583

Distribution of Zeolites in Lavas of Southeastern Parana Basin, State of Rio Grande do Sul, Brazil [K. J. Murata, M. L. L. Formosa, and A. Roisenberg], 455

Distribution of Orthocumulate Textures in the Jimberlana Intrusion [I. H. Campbell], 35

Dolomitization of Atolls by Sea Water Convection Flow: Test of a Hypothesis at Niue, South Pacific [P. Aharon, R. A. Socki, and L. Chan], 187

Douglas, B. J., S. L. Saul, and C. R. Stern. *Rheology of the Upper Mantle beneath Southernmost South America Inferred from Peridotite Xenoliths*, 241

Drury, S. A., P. C. Van Calsteren, and G. J. Reeves-Smith. *Sm-Nd Isotopic Data from Archean Metavolcanic Rocks at Holenarsipur, Karnataka, South India*, 837

Early Geochemical Evolution of an Oceanic Island Arc and Backarc: Fiji and the South Fiji Basin [J. B. Gill], 589

Edelman, S. H., A. Liu, and R. D. Hatcher, Jr. *The Brevard Zone in South Carolina and Adjacent Areas: An Alleghanian Orogen-Scale Dextral Shear Zone Reactivated as a Thrust Fault*, 793

Eolian Sediment Transport as a Stochastic Process: The Effects of a Fluctuating Wind on Particle Trajectories [R. S. Anderson], 497

Espinosa, A. *See* Spadea, P.

Essene, E. J. *See* Anovitz, L. M.

Estimating Stratigraphic Completeness [J. C. Tipper], 710

Ettensohn, F. R. *Rates of Relative Plate Motion during the Acadian Orogeny Based on the Spatial Distribution of Black Shales*, 572

Evolution of a Heterogeneous Continentally Derived Granite: Dona Inês Pluton, Northeastern Brazil [J. McMurry, L. E. Long, and A. N. Sial], 87

Faure, G. *See* Strobel, M. L.

Fisher, R. L. *See* Bloomer, S. H.

Foliated Breccias in the Active Portuguese Bend Landslide Complex, California: Bearing on Melange Genesis [D. K. Larue and P. J. Hudleston], 407

Formation of Sulfide-Calcite Veinlets in the Kupferschiefer Cu-Ag Deposits in Poland by Natural Hydrofracturing during Basin Subsidence [E. C. Jowett], 513

Formoso, M. L. L. *See* Murata, K. J.

Frost, C. D., and D. Winston. *Nd Isotope Systematics of Coarse- and Fine-Grained Sediments: Examples from the Middle Proterozoic Belt-Purcell Supergroup*, 309

Fudali, R. F. *Wolf Creek Crater Revisited*, 134

Geochemical Consequences of Melt Percolation: The Upper Mantle as a Chromatographic Column [O. Navon and E. Stolper], 285

Geochemistry and Petrogenesis of Granitoids around the Kolar Schist Belt, South India: Constraints for the Evolution of the Crust in the Kolar Area [S. Balakrishnan and V. Rajamani], 219

Geology and Regional Implications of Carbonatites in the Lemitar Mountains, Central New Mexico [V. T. McLemore], 255

Gill, J. B. *Early Geochemical Evolution of an Oceanic Island Arc and Backarc: Fiji and the South Fiji Basin*, 589

Gingerich, P. D. *See* Butler, R. F.

Gradient-Particle Size Relations on Quartz Monzonite Debris Slopes in the Mojave Desert [A. J. Parsons and A. D. Abrahams], 423

Greiling, R. *See* Kröner, A.

Grossman, L. *See* Wasson, J. T.

Hamilton, D. L. *Solubility of Water in Albite-Melt Determined by the Weight Loss Method: A Reply*, 585

Harrison, T. M. *Comment on "Kelvin and the Age of the Earth,"* 725
Hartnell, J. A. *See* Schiebout, J. A.
Hatcher, R. D., Jr. *See* Edelman, S. D.
Hess, J. C., H. J. Lippolt, and A. M. Borsuk. *Constraints on the Jurassic Time-Scale by $^{40}Ar/^{39}Ar$ Dating of North Caucasian Volcanic Rocks,* 563
Hibbard, M. J. *Deformation of Incompletely Crystallized Magma Systems: Granitic Gneisses and their Tectonic Implications,* 543
Horizontal Laminae Formed under Upper Flow Regime Plane Bed Conditions: A Reply [R. J. Cheel and G. V. Middleton], 282
Horizontal Laminae Formed under Upper Flow Regime Plane Bed Conditions: A Discussion [J. S. Bridge], 281
Hudleston, P. J. *See* Larue, D. K.
Hyndman, D., and D. Alt. *Radial Dikes, Laccoliths, and Gelatin Models,* 763
Igneous and Tectonic Evolution of the Batchawana Greenstone Belt, Superior Province: A U-Pb Study [F. Corfu and E. C. Grunsky], 87
Introduction to Optical Mineralogy, by W. D. Nesse. *Review* by W. I. Rose, 283
Johnson, N. M. *See* Naeser, C. W.
Jowett, E. C. *Formation of Sulfide-Calcite Veinlets in the Kupferschiefer Cu-Ag Deposits in Poland by Natural Hydrofracturing during Basin Subsidence,* 513
Kay, S. M. *See* Debari, S.
Kay, R. W. *See* Debari, S.
Kimberlites: Mineralogy, Geochemistry, and Petrology, by R. H. Mitchell. *Review* by J. V. Smith, 283
Krause, D. W. *See* Butler, R. F.
Kröner, A., and R. Greiling, editors of Precambrian Tectonics Illustrated. *Review* by R. C. Newton, 587
Kröner, A., I. S. Williams, W. Compston, N. Baur, P. W. Vitanage, and L. R. K. Perera. *Zircon Ion Microprobe Dating of Granulites in Sri Lanka,* 775
Krueger, S. W. *See* Anders, M. H.
A Laboratory Investigation of Assimilation at the Top of a Basaltic Magma Chamber [I. H. Campbell and J. S. Turner], 155
Larue, D. K., and P. J. Hudleston. *Foliated Breccias in the Active Portuguese Bend Landslide Complex, California: Bearing on Melange Genesis,* 407
Late Paleozoic Tectonic Evolution of the Norfolk Basin, Southeastern Massachusetts [E. C. Cazier], 55
Limits to Magma Mixing Based on Chemistry and Mineralogy of Pumice Fragments Erupted from a Chemically Zoned Magma Body [T. A. Vogel, F. J. Ryerson, D. C. Noble, and L. W. Younker], 659
Lippolt, H. J. *See* Hess, J. C.
Lithofacies of Deep Marine Basalts Emplaced on a Jurassic Backarc Apron, Baja California (Mexico) [C. J. Busby-Spera], 671
Liu, A. *See* Edelman, S. H.
MacFadden, B. J. *See* Naeser, C. W.
Magnetic Polarity Stratigraphy and Biostratigraphy of Middle-Late Paleocene Continental Deposits of South-Central Montana [R. F. Butler, D. W. Krause, and P. D. Gingerich], 647
Man's Influence on the Erosion and Transport of Sediment by Asian Rivers: The Yellow River (Huanghe) Example [J. D. Milliman, Q. Yun-shan, R. Mei-e, and Y. Saito], 751
Manuscript Style Guidelines for Authors, 137
Marshall, J. R., author of Clastic Particles: Scanning Electron Microscopy and Shape Analysis of Sedimentary and Volcanic Clasts. *Review* by J. V. Smith, 845
Mathematical Modeling of Graded River Profiles [R. S. Snow and R. L. Slingerland], 15
McKee, E. H. *See* Naeser, C. W.
McLemore, V. T. *Geology and Regional Implications of Carbonatites in the Lemitar Mountains, Central New Mexico,* 255
McMurry, J., L. E. Long, and A. N. Sial. *Evolution of a Heterogeneous Continentally Derived Granite: Dona Inês Pluton, Northeastern Brazil,* 87
Mei-e, R. *See* Milliman, J. D.
Metamorphic P-T Conditions of the Kerala (South India) Khondalite Belt, A Granulite Facies Supracrustal Terrain [T. Chacko, G. R. Ravindra Kumar, and R. C. Newton], 343
Meteorites: Their Record of Early Solar-System History, by J. T. Wasson. *Review* by L. Grossman, 845
A Microstructural Indicator of Shear Sense in Volcanic Rocks and Its Relationship to Porphyroblast Rotation in Metamorphic Rocks [R. H. Vernon], 127
Middleton, G. V., and R. J. Cheel. *Horizontal Laminae Formed under Upper Flow Regime Plane Bed Conditions: A Reply,* 282
Miller, J. G. *Paleotectonic and Stratigraphic Implications of the Kingston Peak-Noonday Contact in the Panamint Range, Eastern California,* 75
Milliman, J. D., Q. Yun-shan, R. Mei-e, and Y. Saito. *Man's Influence on the Erosion and Transport of Sediment by Asian Rivers: The Yellow River (Huanghe) Example,* 751
Mitchell, R. H., author of Kimberlites: Mineralogy, Geochemistry, and Petrology. *Review* by J. V. Smith, 283
Mixing Properties of $NaAlSi_3O_8$-Melt H_2O: New

Calorimetric Data and Some Geological Implications [J. D. Clemens and A. Navrotsky], 173

Models for Granitoid Evolution and Source Composition [V. J. Wall, J. D. Clemens, and D. B. Clarke], 331

Murata, K. J., M. L. L. Formoso, and A. Roisenberg. *Distribution of Zeolites in Lavas of Southeastern Parana Basin, State of Rio Grande do Sul, Brazil*, 455

Muto, T. *Coastal Fan Processes Controlled by Sea Level Changes: A Quaternary Example from the Tenryugawa Fan System, Pacific Coast of Central Japan*, 716

Naeser, C. W., E. H. McKee, N. M. Johnson, and B. J. MacFadden. *Confirmation for a Late Oligocene-Early Miocene Age of the Deseadan Salla Beds of Bolivia*, 825

Navon, O., and E. Stolper. *Geochemical Consequences of Melt Percolation: The Upper Mantle as a Chromatographic Column*, 285

Navrotsky, A. *See* Clemens, J. D.

Nd Isotope Systematics of Coarse- and Fine-Grained Sediments: Examples from the Middle Proterozoic Belt-Purcell Supergroup [C. D. Frost and D. Winston], 309

Nesse, W. D., author of Introduction to Optical Mineralogy. *Review* by W. I. Rose, 283

A New Look at Sedimentation Rates and the Completeness of the Stratigraphic Record [M. H. Anders, S. W. Krueger, and P. M. Sadler], 1

New U/Pb Ages from Granite and Granite Gneiss in the Ruby Geanticline and Southern Brooks Range, Alaska [W. W. Patton, Jr., T. W. Stern, J. G. Arth, and C. Carlson], 118

Newton, R. C. *See* Kröner, A.

Newton, R. C. *See* Chacko, T.

Noble, D. C. *See* Vogel, T. A.

Ohashi, M. *See* Sugisaki, R.

The Ocean Floor, edited by R. A. Scrutton and M. Talwani. *Review* by K. Aalto, 729

Ophiolite Complex from La Tetilla, Southwestern Columbia [P. Spadea, M. Delaloye, A. Espinosa, A. Orrego, and J. J. Wagner], 377

Orrego, A. *See* Spadea, P.

Padian, K., editor of The Beginning of the Age of the Dinosaurs. *Review* by D. Jablonski, 845

Paleocurrent Directions from Two-Dimensional Exposures of Cross Laminae in the Devonian Flysch of Maine [D. C. Bradley], 271

Paleotectonic and Stratigraphic Implications of the Kingston Peak-Noonday Contact in the Panamint Range, Eastern California [J. M. Miller], 75

Parsons, A. J., and A. D. Abrahams. *Gradient-Particle Size Relations on Quartz Monzonite Debris Slopes in the Mojave Desert*, 423

Patton, W. W., Jr., T. W. Stern, J. G. Arth, and C. Carlson. *New U/Pb Ages from Granite and Granite Gneiss in the Ruby Geanticline and Southern Brooks Range, Alaska*, 118

Perera, L. R. K. *See* Kröner, A.

Petrology and Geochemistry of Igneous Rocks from the Tonga Trench—A Non-Accreting Plate Boundary [S. H. Bloomer and R. L. Fisher], 469

Precambrian Tectonics Illustrated, edited by A. Kroner and R. Greiling. *Review* by R. C. Newton, 587

Pressure-Temperature-Time Paths and a Tectonic Model for the Evolution of Granulites [S. R. Bohlen], 617

Radial Dikes, Laccoliths, and Gelatin Models [D. Hyndman and D. Alt], 763

Radioactivity, Heat Flow, and Rifting of the Indian Continental Crust [J. J. W. Rogers and E. J. Callahan], 829

Rajamani, V. *See* Balakrishnan, S.

Rapp, S. D. *See* Schiebout, J. A.

Rates of Relative Plate Motion during the Acadian Orogeny Based on the Spatial Distribution of Black Shales [F. R. Ettensohn], 572

Ravindra Kumar. *See* Chacko, T.

Reeves-Smith, G. J. *See* Drury, S. A.

Reviews, 283, 587, 729, 845

Rheology of the Upper Mantle beneath Southernmost South America Inferred from Peridotite Xenoliths [B. J. Douglas, S. L. Saul, and C. R. Stern], 241

Rigsby, C. A. *See* Schiebout, J. A.

Rogers, J. J. W., and E. J. Callahan. *Radioactivity, Heat Flow, and Rifting of the Indian Continental Crust*, 829

Roisenberg, A. *See* Murata, K. J.

Rose, W. I. *See* Nesse, W. D.

Ryerson, F. J. *See* Vogel, T. A.

Sadler, P. M. *See* Anders, M. H.

Saito, Y. *See* Milliman, J. D.

Sandstone Landforms of the Tropical East Kimberly Region, Northwestern Australia [R. W. Young], 205

Saul, S. L. *See* Douglas, B. J.

Scarfe, C. M. *See* Dingwell, D. B.

Schiebout, J. A., C. A. Rigsby, S. D. Rapp, J. A. Hartnell, and B. R. Standhardt. *Stratigraphy of the Cretaceous-Tertiary and Paleocene-Eocene Transition Rocks of Big Bend National Park, Texas*, 359

Scrutten, R. A., and M. Talwani, editors of The Ocean Floor. *Review* by K. Aalto, 329

Sediment Entrainment from Viscous Fluids: Can Crystals be Formed from Magma Chamber Floors? [S. Blake], 397
Sedimentary and Evolutionary Cycles, edited by U. Bayer and A. Sielacher. *Review* by C. W. Byers, 587
Sielacher, A. *See* Bayer, U.
Smith, J. V. *See* Marshall, J. R. and Mitchell, R. H.
Sm-Nd Isotopic Data from Archean Metavolcanic Rocks at Holenarsipur, Karnataka, South India [S. A. Drury, P. C. Van Calsteren, and G. J. Reeves-Smith], 837
Snow, R. S., and R. L. Slingerland. *Mathematical Modeling of Graded River Profiles*, 15
Socki, R. A. *See* Aharon, P.
Solubility of Water in Albite-Melt Determined by the Weight Loss Method: A Reply [D. L. Hamilton], 585
Solubility of Water in Albite-Melt Determined by the Weight Loss Method: A Discussion [D. B. Dingwell and C. M. Scarfe], 583
Spadea, P., M. Delaloye, A. Espinosa, A. Orrego, and J. J. Wagner. *Ophiolite Complex from La Tetilla, Southwestern Columbia*, 377
Standhardt, B. R. *See* Schiebout, J. A.
Stauffer, P. H. *See* Decker, R. W.
Stern, C. R. *See* Douglas, B. J.
Stern, T. W. *See* Patton, W. W., Jr.
Stolper, E. *See* Navon, O.
Stratigraphy of the Cretaceous-Tertiary and Paleocene-Eocene Transition Rocks of Big Bend National Park, Texas [J. A. Schiebout, C. A. Rigsby, S. D. Rapp, J. A. Hartnell, and B. R. Standhardt], 359
Strobel, M. L., and G. Faure. *Transport of Indicator Clasts by Ice Sheets and the Transport Half-Distance: A Contribution to Prospecting for Ore Deposits*, 687
Subglacial Sediment Dispersal and Till Composition [P. U. Clark], 527
Sugisaki, R., Ohashi, M., Sugitani, K., and Suzuki, K. *Compositional Variations in Manganese Micronodules: A Possible Indicator of Sedimentary Environments*, 433
Sugitani, K. *See* Sugisaki, R.
Suzuki, K. *See* Sugisaki, R.
Talwani, M. *See* Scrutton, R. A.
Tipper, J. C. *Estimating Stratigraphic Completeness*, 710
Transport of Indicator Clasts by Ice Sheets and the Transport Half-Distance: A Contribution to Prospecting for Ore Deposits [M. L. Strobel and G. Faure], 687
Turner, J. S. *See* Campbell, I. H.
Ultramafic Xenoliths from Adagdak Volcano, Adak, Aleutian Islands, Alaska: Deformed Cumulates from the Moho of an Island Arc [S. Debari, S. M. Kay, and R. W. Kay], 329
Van Calsteren, P. C. *See* Drury, S. A.
Vernon, R. H. *A Microstructural Indicator of Shear Sense in Volcanic Rocks and Its Relationship to Porphyroblast Rotation in Metamorphic Rocks*, 127
Vitanage, P. W. *See* Kröner, A.
Vogel, T. A., F. J. Ryerson, D. C. Noble, and L. W. Younker. *Limits to Magma Mixing Based on Chemistry and Mineralogy of Pumice Fragments Erupted from a Chemically Zoned Magma Body*, 659
Volcanism in Hawaii, edited by R. W. Decker, T. L. Wright, and P. H. Stauffer. *Review* by A. T. Anderson, 729
Wagner, J. J. See Spadea, P.
Wall, V. J., J. D. Clemens, and D. B. Clarke. *Models for Granitoid Evolution and Source Composition*, 731
Wasson, J. T., author of Meteorites: Their Record of Early Solar-System History. *Review* by L. Grossman, 845
White, C. M., and C. Craddock. *Compositions of Igneous Rocks in the Thurston Island Area, Antarctica: Evidence for a Late Paleozoic-Middle Mesozoic Andinotype Continental Crust*, 699
Williams, I. S. *See* Kröner, A.
Winston, D. See Frost, C. D.
Wolf Creek Crater Revisited [R. F. Fudali], 134
Wright, T. L. *See* Decker, T. L.
Young, R. W. *Sandstone Landforms of the Tropical East Kimberly Region, Northwestern Australia*, 205
Younker, L. W. *See* Vogel, T. A.
Yun-shan, Q. *See* Milliman, J. D.
Zircon Ion Microprobe Dating of Granulites in Sri Lanka [A. Kröner, I. S. Williams, W. Compston, N. Baur, P. W. Vitanage, and L. R. K. Perera], 775

CONTENTS OF VOLUME 95

NUMBER 1

A New Look at Sedimentation Rates and the Completeness of the Stratigraphic Record. M. H. Anders, S. W. Krueger, and P. W. Sadler 1

Mathematical Modeling of Graded River Profiles. R. S. Snow and R. L. Slingerland 15

Distribution of Orthocumulate Textures in the Jimberlana Intrusion. I. H. Campbell 35

Late Paleozoic Tectonic Evolution of the Norfolk Basin. E. C. Cazier 55

Paleotectonic and Stratigraphic Implications of the Kingston Peak-Noonday Contact in the Panamint Range, Eastern California. J. M. G. Miller 75

Igneous and Tectonic Evolution of the Batchawana Greenstone Belt, Superior Province: A U-Pb Study. F. Corfu and E. C. Grunsky 87

Geological Notes

Evolution of a Heterogeneous, Continentally Derived Granite: Dona Inês Pluton, Northeastern Brazil. J. McMurry, L. E. Long, and A. N. Sial 107

New U/Pb Ages from Granite and Granite Gneiss in the Ruby Geanticline and southern Brooks Range, Alaska. W. W. Patton, Jr., T. W. Stern, J. G. Arth, and C. Carlson 118

A Microstructural Indicator of Shear Sense in Volcanic Rocks and Its Relationship to Porphyroblast Rotation in Metamorphic Rocks. R. H. Vernon 127

Wolf Creek Crater Revisited. R. F. Fudali 134

Manuscript Style Guidelines for Authors 137

NUMBER 2

Crust-Enriched, Mantle-Derived Tonalites in the Early Proterozoic Penokean Orogen of Wisconsin. J. L. Anderson and R. L. Cullers 139

A Laboratory Investigation of Assimilation at the Top of a Basaltic Magma Chamber. I. H. Campbell and J. S. Turner 155

Mixing Properties of $NaAlSi_3O_8$ Melt-H_2O: New Calorimetric Data and Some Geological Implications. J. D. Clemens and A. Navrotsky 173

Dolomitization of Atolls by Sea Water Convection Flow: Test of a Hypothesis at Niue, South Pacific. P. Aharon, R. A. Socki, and I. Chan 187

Sandstone Landforms of the Tropical East Kimberly Region, Northwestern Australia. R. W. Young 205

Geochemistry and Petrogenesis of Granitoids Around the Kolar Schist Belt, South India: Constraints for the Evolution of the Crust in the Kolar Area. S. Balakrishnan and V. Rajamani 219

Rheology of the Upper Mantle Beneath Southernmost South America Inferred from Peridotite Xenoliths. B. J. Douglas, S. L. Saul, and C. R. Stern 241

Geology and Regional Implications of Carbonatites in the Lemitar Mountains, Central New Mexico. V. T. McLemore 255

Geological Notes

Paleocurrent Directions from Two-Dimensional Exposures of Cross Laminae in the Devonian Flysch of Maine. D. C. Bradley 271

Discussion and Reply

Horizontal Laminae Formed under Upper Flow Regime Plane Bed Conditions: A Discussion. J. S. Bridge 281

Horizontal Laminae Formed under Upper Flow Regime Plane Bed Conditions: A Reply. R. J. Cheel and G. V. Middleton 282

Reviews 283

NUMBER 3

Geochemical Consequences of Melt Percolation: The Upper Mantle as a Chromatographic Column. O. Navon and E. Stolper 285
Nd Isotope Systematics of Coarse- and Fine-Grained Sediments: Examples from the Middle Proterozoic Belt-Purcell Supergroup. C. D. Frost and D. Winston 309
Ultramafic Xenoliths from Adagdak Volcano, Adak, Aleutian Islands, Alaska: Deformed Igneous Cumulates from the Moho of an Island Arc. S. Debari, S. M. Kay, and R. W. Kay 329
Metamorphic P-T Conditions of the Kerala (South India) Khondalite Belt, A Granulite Facies Supracrustal Terrain. T. Chacko, G. R. Ravindra Kumar, and R. C. Newton 343
Stratigraphy of the Cretaceous-Tertiary and Paleocene-Eocene Transition Rocks of Big Bend National Park, Texas. J. A. Schiebout, C. A. Rigsby, S. D. Rapp, J. A. Hartnell, and B. R. Standhardt 359
Ophiolite Complex from La Tetilla, Southwestern Columbia. P. Spadea, M. Delaloye, A. Espinosa, A. Orrego, and J. J. Wagner 377
Sediment Entrainment in Viscous Fluids: Can Crystals Be Erupted from Magma Chamber Floors? S. Blake 397
Foliated Breccias in the Active Portuguese Bend Landslide Complex, California: Bearing on Melange Genesis. D. K. Larue and P. J. Hudleston 407
Gradient-Particle Size Relations on Quartz Monzonite Debris Slopes in the Mojave Desert. A. J. Parsons and A. D. Abrahams 423

NUMBER 4

Compositional Variations in Manganese Micronodules: A Possible Indicator of Sedimentary Environments. R. Sugisaki, M. Ohashi, K. Sugitani, and K. Suzuki 433
Distribution of Zeolites in Lavas of Southeastern Parana Basin, State of Rio Grande Do Sul, Brazil. K. J. Murata, M. L. L. Formoso, and A. Roisenberg 455
Petrology and Geochemistry of Igneous Rocks from the Tonga Trench—A Non-Accreting Plate Boundary. S. H. Bloomer and R. L. Fisher 469
Eolian Sediment Transport as a Stochastic Process: The Effects of a Fluctuating Wind on Particle Trajectories. R. S. Anderson 497
Formation of Sulfide-Calcite Veinlets in the Kupferschiefer Cu-Ag Deposits in Poland by Natural Hydrofracturing During Basin Subsidence. E. C. Jowett 513
Subglacial Sediment Dispersal and Till Composition. P. U. Clark 527
Deformation of Incompletely Crystallized Magma Systems: Granitic Gneisses and Their Tectonic Implications. M. J. Hibbard 543
Geological Notes
Constraints on the Jurassic Time-Scale by $^{40}Ar/^{39}Ar$ Dating of North Caucasian Volcanic Rocks. J. C. Hess, H. J. Lippolt, and A. M. Borsuk 563
Rates of Relative Plate Motion during the Acadean Orogeny Based on the Spatial Distribution of Black Shales. F. R. Ettensohn 572
Discussion and Reply
Solubility of Water in Albite-Melt Determined by the Weight Loss Method: A Discussion. D. B. Dingwell and C. M. Scarfe 583
Solubility of Water in Albite-Melt Determined by the Weight Loss Method: A Reply. D. L. Hamilton 587

NUMBER 5

Early Geochemical Evolution of an Oceanic Island Arc and Backarc: Fiji and the South Fiji Basin. J. B. Gill 589
Pressure-Temperature-Time Paths and a Tectonic Model for the Evolution of Granulites. S. R. Bohlen 617

Compatibility of Geobarometers in the System CaO-FeO-Al_2O_3-SiO_2-TiO_2-(CFAST): Implications for Garnet Mixing Models. L. M. Anovitz and E. J. Essene 633
Magnetic Polarity Stratigraphy and Biostratigraphy of the Middle-Late Paleocene Continental Deposits of South-Central Montana. R. F. Butler, D. W. Krause, and P. D. Gingerich . 647
Limits to Magma Mixing Based on Chemistry and Mineralogy of Pumice Fragments Erupted from a Chemically Zoned Magma Body. T. A. Vogel, F. J. Ryerson, D. C. Noble, and L. W. Younker 659
Lithofacies of Deep Marine Basalts Emplaced on a Jurassic Backarc Apron, Baja California (Mexico). C. J. Busby-Spera 671
Transport of Indicator Clasts by Ice Sheets and the Transport Half-Distance: A Contribution to Prospecting for Ore Deposits. M. L. Strobel and G. Faure 687
Geological Notes
Compositions of Igneous Rocks in the Thurston Island Area, Antarctica: Evidence for a Late Paleozoic-Middle Mesozoic Andinotype Continental Margin. C. M. White and C. Craddock 699
Estimating Stratigraphic Completeness. J. C. Tipper 710
Coastal Fan Processes Controlled by Sea Level Changes: A Quaternary Example from the Tenryugawa Fan System, Pacific Coast of Central Japan. T. Muto 716
Comment on "Kelvin and the Age of the Earth." T. M. Harrison 725
Reviews 729

NUMBER 6

Models for Granitoid Evolution and Source Composition. V. J. Wall, J. D. Clemens, and D. B. Clarke 731
Man's Influence on the Erosion and Transport of Sediment by Asian Rivers: The Yellow River (Huanghe) Example. J. D. Milliman, Q. Yun-shan, R. Mei-e, and Y. Saito 751
Radial Dikes, Laccoliths, and Gelatin Models. D. Hyndman and D. Alt 763
Zircon Ion Microprobe Dating of Granulites in Sri Lanka. A. Kröner, I. S. Williams, W. Compston, N. Baur, P. W. Vitanage, and L. R. K. Perera 775
The Brevard Zone in South Carolina and Adjacent Areas: An Alleghanian Orogen-Scale Dextral Shear Zone Reactivated as a Thrust Fault. S. H. Edelman, A. Liu, and R. D. Hatcher, Jr. 793
Controls on the Apparent Thermal and Baric Structure of Mountain Belts. H. W. Day 807
Geological Notes
Confirmation for a Late Oligocene-Early Miocene Age of the Deseadan Salla Beds of Bolivia. C. W. Naeser, E. H. McKee, N. M. Johnson, and B. J. MacFadden 825
Radioactivity, Heat Flow, and Rifting of the Indian Continental Crust. J. J. W. Rogers and E. J. Callahan 829
Sm-Nd Isotopic Data from Archean Metavolcanic Rocks at Holenarsipur, Karnataka, South India. S. A. Drury, P. C. Van Calsteren, and G. J. Reeves-Smith 837
Reviews 845
Errata 846
Index to Volume 95 847
Contents of Volume 95 853